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Factors associated with recent physical violence against orphaned and vulnerable children (OVC) in Namibia: A cross-sectional analysis of programmatic data from 2023 to 2024

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ABSTRACT

Background: An estimated one billion children aged two to 17 years globally have experienced physical, sexual, or emotional violence or neglect. In Namibia, nearly 50% of girls and boys encounter physical, sexual, or emotional violence during childhood. Orphaned and vulnerable children (OVC) experience significant adverse effects as a result of their living conditions.
Objective: This study assessed the rate of physical violence and its associated factors against OVC in Namibia.
Participants and setting: The study included OVC aged 0 to 20 years in 13 primary health administrative districts in Namibia.
Methods: This retrospective cross-sectional study utilized programmatic data collected from 2023 to 2024 from OVC participating in the Reach program, implemented by Project Hope Namibia. The study included OVC aged 0 to 20 years. Data were analyzed utilizing IBM Statistical Package for Social Sciences (SPSS) version 29. Chi-square tests and binomial and multivariable logistic regression analyses were conducted.
Results: Among the 16,507 participants included in this analysis, 1803 (10.9%) participants were recently physically abused, 95% confidence interval (CI) (10.4% – 11.4%). Omuthiya had the highest physical abuse rate (n = 73; 18.2%), while Outapi had the lowest (n = 47; 8.4%). Participants aged 10-14 years were less likely to have experienced recent physical abuse than those aged 15-20, adjusted odds ratio (AOR) = 0.81, 95% CI (0.70 – 0.95). Disabled participants had a lower likelihood of reporting recent physical abuse than the non-disabled ones (AOR = 0.62, 95% CI (0.41 – 0.93)). Furthermore, participants who had caregivers who were HIV-positive were less likely to have experienced recent physical abuse than those whose caregivers were HIV-negative (crude odds ratio (COR) = 0.25, 95% CI (0.06 – 0.99). In contrast, participants from Omuthiya were more likely to have experienced recent physical abuse than those from Windhoek (AOR = 1.74, 95% CI (1.25 – 2.43)).
Conclusion: Violence against children (VAC) awareness campaigns in high-risk districts, focusing on physical violence and community-level behavior change, must be expanded. Periodical regional VAC assessments must be conducted to identify and address localized drivers of violence.

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1. Introduction

Violence against children (VAC) is recognized as a global public health problem (Villaveces & Viswanathan, 2022). It encompasses all types of violence directed at individuals under 18 years of age, committed by parents, caregivers, peers, romantic partners, or strangers (WHO, 2018). VAC includes all forms of physical and emotional ill-treatment, sexual abuse, neglect, or exploitation that may cause actual or potential harm to a child's health, development, and dignity (UNICEF, 2023). VAC occurs primarily in the home but also in environments such as schools, communities, and orphanages (Gentz et al., 2021; UNICEF, 2013).

It is estimated that approximately one billion children aged two to 17 years worldwide have encountered physical, intimate partner, or emotional violence or neglect (Hillis et al., 2016). Although research indicates that girls face a heightened risk of intimate partner violence (IPV), whereas boys are more frequently identified as perpetrators (Dunkle et al., 2004; Mathews et al., 2011), a study in four sub-Saharan African countries found that 12-25% of girls and 30-45% of boys face physical violence before turning 18 years old (Swedo et al., 2019). VAC results in both direct and indirect health consequences for the victims. Direct health effects can encompass severe injuries that may result in disability or mortality (WHO, 2018). Early exposure to violence can adversely affect brain development and harm various systems, including the nervous, endocrine, circulatory, musculoskeletal, reproductive, respiratory, and immune systems, leading to lifelong repercussions (Shonkoff et al., 2012).

VAC adversely impacts mental growth, which causes people to do poorly in school and the workplace (Fry et al., 2018). A study conducted in South Africa and Malawi revealed that children who were physically abused performed poorly at school (Sherr et al., 2016). The indirect health effects of VAC come from being exposed to or watching violence over and over again, which makes the immune, neuroendocrine, and autonomic systems work harder. Children are constantly stressed because of the stimulation, as shown by their high heart rate, hypervigilance, and cortisol levels (Shonkoff et al., 2012). Being under a lot of stress and fear for a long time can hurt children's mental health and their ability to deal with problems. This can lead to problems like depression, substance abuse (Chigiji et al., 2018), suicide (Bahk et al., 2017), learning problems (Fry et al., 2018), social problems (Pfaltz et al., 2022), and low productivity (Chigiji et al., 2018). Stress responses can become normalized, which can lead children to act aggressively toward others or perceive aggression in others when there is no real threat. VAC can have long-lasting effects on their mental and social development, including problems with attachment, not thriving, trauma, anxiety, sadness, and acting in ways that hurt others or themselves (Milot et al., 2010). Self-destructive behavior can include risky sexual practices, leading to unintended pregnancies and sexually transmitted infections (Chigiji et al., 2018). VAC is associated with the later development of non-communicable diseases, including cardiovascular disease, cancer, chronic lung disease, and diabetes (Hughes et al., 2017). VAC increases the likelihood that children will become victims or perpetrators again later in life.

Previous studies conducted in sub-Saharan Africa (SSA) identified several risk factors associated with physical violence. According to the socioecological framework, risk factors can be divided into individual, close-relationship, societal, and public policy factors (Pillay, 2024). Risk factors at the individual level include age, being orphaned before the age of 13 years, experiencing emotional abuse before the age of 13 years (Breiding et al., 2013), poverty (van der Brug & Hango, 2024), exposure to drugs, alcohol, crime, and conflict, and disability (Musizvingoza et al., 2022). Close-relationship factors include having lived with three or more families during childhood (Breiding et al., 2013), sharing a household with a depressed individual (Musizvingoza et al., 2022), living in households without either parent (Hsiao et al., 2018), experiencing poor family relationships (Chigiji et al., 2018), the presence of adult illness in the home (Chigiji et al., 2018), having peer relationships (Chigiji et al., 2018), and encountering unsupportive teachers at school (Chigiji et al., 2018). Societal risk factors for physical violence include increased exposure to community members engaged in substance abuse and criminal activities, as well as low family socioeconomic status (Chigiji et al., 2018; Hsiao et al., 2018).

In Namibia, almost 40% of girls and 45% of boys experience physical, sexual, or emotional violence during their childhood (Ministry of Gender Equality, Poverty Education, and Social Welfare, 2020). However, estimates show that only half of the victims report these acts of violence against them, and just 15% receive support (Velloza et al., 2022). Little is known about the rate of physical violence in orphaned and vulnerable children (OVC) in Namibia. OVC are children who need protection and care due to circumstances such as losing one or both parents, or face circumstances that put their well-being at risk (Thompson et al., 2012). The rate may be higher among OVC since they sometimes stay in hostile environments. We used data from the OVC program to assess the rate of physical violence against OVC and its associated factors at the initial assessment. The study findings can guide appropriate programming interventions to reduce physical violence against OVC, potentially improving their health outcomes by reducing its long-term consequences.

2. Methods

2.1. Study design

This study is a retrospective cross-sectional secondary analysis of programmatic data collected from 2023 to 2024 from OVC participating in the Reach program, implemented by Project Hope Namibia (PHN).

2.2. Program intervention and population

This program defines OVC as children who are affected by HIV and AIDS due to their own or their caregivers' HIV status or other socioeconomic vulnerabilities. The Reach program targeted children and young adults up to the age of 17 years in 13 primary health administrative districts in Namibia. The participants were recruited from communities, schools, and healthcare facilities. Program participation was also open to those aged 18-20 who were still in secondary school or enrolled in an economic strengthening intervention by the time they turned 18. The OVC program functioned as a vital intervention aimed at improving the welfare of children affected by HIV, violence, poverty, and other vulnerabilities. The program utilized a structured case management system to identify, assess, and address the needs of beneficiaries, facilitating their progression toward independence and eventual graduation from program support. Children prioritized for support included those living with HIV, survivors of violence, particularly sexual violence, children from child-headed households, children with parents or caregivers who are HIV-positive, children of female sex workers, and infants exposed to HIV. Beneficiaries underwent assessment at least twice a year, utilizing standardized instruments. The assessment encompassed critical domains, including health, education, economic stability, safety, and psychosocial well-being. Case plans were formulated based on the assessment results. Plans highlighted the necessity of addressing significant vulnerabilities, such as insufficient school attendance, food insecurity, exposure to violence, and unfulfilled health needs. Clear benchmarks for improvement and graduation objectives were established. VAC prevention services offered included gender-based violence (GBV) awareness campaigns, positive parenting training, school-based violence prevention, economic strengthening, and HIV and GBV education. The program also offered response services, including counseling and psychological support, case management, legal support and referrals, medical referrals, and emergency shelter services. Capacity building included training frontline workers and school staff, as well as strengthening collaboration among child

protection services. The program also provided psychological and material support, as well as VAC assessments.

2.3. Data source

Anonymized data were obtained from the PHN Reach OVC program database. The source document was PHN's child case management booklet. Some data collected during the programs included programmatic details, sociodemographic characteristics of participants and caregivers, vulnerability factors, and the presence of recent physical abuse. Programmatic details included the date of joining the program, the period the OVC had been in the program, and the district where the participant joined the program.

2.4. Outcome variable

The dependent variable in this study was recent physical violence. Recent physical violence was defined as physical violence that occurred within three months of the day of the initial assessment into the program. The question that captured the dependent variable in the dataset was: 'In the past three months, did anyone physically hurt you/the child in any way?' This question was answered by the children themselves if they were old enough to understand the question. However, if the children were unable to answer the question themselves, guardians or caregivers were requested to answer on their behalf. The answers to this question were 'Yes' or 'No.' 'Yes' was assigned code '2', whereas 'No' was assigned code '1 '.

2.5. Explanatory variables

This study used seventeen independent variables grouped into participants, caregiver characteristics, and vulnerability factors. We chose the variables based on their significance to physical abuse against OVC in previous studies.

2.6. Participant and caregiver characteristics

Participants' characteristics included age group, sex, district, and educational enrolment status. Age, collected as a discrete numerical variable during the program, was categorized into age groups '0-9,' '10-14,' and '15-20.' Sex was classified as 'male' and 'female,' while educational enrolment status was categorized as 'Never enrolled,' 'Enrolled,' and 'Dropout.' Caregivers' characteristics included sex, marital status, educational level, and HIV status. Sex was classified as 'male' and 'female,' while the educational level was categorized as 'Dropout,' 'Never enrolled,' 'High school or below,' 'Attending vocational training or tertiary education,' and 'Completed vocational training or tertiary education.' Marital status was categorized as 'Married,' 'Separated, divorced, or widowed,' and 'Single, never married,' while the HIV status was categorized as 'Negative,' 'Positive,' and 'Don't know.'

2.7. Vulnerability factors

The vulnerability factors included in this study were the participants' HIV status, the household hunger scale, the living status of biological parents, whether the child lived in a child-headed household, disability status, whether parents or caregivers had a source of income, sexual abuse, sexual exploitation, and TB diagnosis status. All the responses were coded as 'yes' or 'no,' except for the living status of biological parents, which was categorized into 'One parent alive,' 'Both parents alive,' 'Both parents dead,' and 'Don't know,' and household hunger scale, which was categorized into 'Little or no hunger,' 'Moderate,' and 'Severe hunger.'

2.8. Data quality assurance

The digital system facilitated the automatic generation of BioID (Unique Identifier Code), implemented automated skip rules, and conducted validation checks for variables such as age and sex and constraints for mandatory questions. The digital system minimized transcription errors, thereby improving data completeness and quality. Data quality assurance (DQA) mechanisms included periodic programmatic spot checks, desk reviews, data quality reviews, and field monitoring by district and regional teams to ensure that reported data met minimum quality standards.

2.9. Criteria for inclusion in data analysis

From the 19,054 individuals newly recruited into the program between 2023 and 2024, we excluded those who were not in the 0-20 age group, those who did not respond to the question of physical abuse, and those with more than half of the variable responses missing. The remaining 16,507 participants were included in the data analysis. The unit of analysis was a unique individual. Duplicate entries were prevented by using the participants' BioID.

2.10. Data analysis

Data were exported from the District Health Information System 2 (DHIS2) to IBM Statistical Package for Social Sciences (SPSS) version 29 for subsequent analysis. Descriptive statistics, including percentages and frequencies, were utilized to analyze nominal and ordinal data. Chi-square tests assessed the relationships between recent physical abuse and the participants' characteristics, caregivers' characteristics, and vulnerability factors. We analyzed characteristics with a p-value of less than or equal to 0.25 in Chi-square tests via binomial logistic regression to assess the strength of their associations with recent physical abuse. The characteristics with a Chi-square *t*-test p-value above 0.25 were not computed (NC) in the binomial logistic regression. Characteristics showing statistically significant associations with physical abuse, as indicated by a p-value of less than 0.05 in binomial logistic regression, were used in multivariable logistic regression to calculate the adjusted odds ratios. However, characteristics with a p-value above 0.05 in binomial logistic regression were not included (NI) in the multivariable logistic regression. Since the missing data for all the variables were missing completely at random, only participants with complete data were included in the multivariable logistic regression model. While the caregiver's HIV status was statistically significant in binomial regression, it was excluded from multivariable regression due to a substantial number of participants not responding. Excluding all participants with no responses would have resulted in a markedly reduced sample size for multivariable regression analysis.

2.11. Ethical considerations

The DREAMS component of the Reach PHN OVC program has been approved by the Namibian Ministry of Health and Social Services (MHSS), the Ministry of Education, Arts, and Culture (MoEAC), the Ministry of Gender Equality, Poverty Eradication and Social Welfare (MGEPESW), and the Ministry of Sport, Youth and National Service (MSYNS). Enrolment into the OVC program was entirely voluntary. All minors in the program provided assent, and their parents or caregivers granted consent. OVC of legal age completed a consent form. Data were collected only from participants after they had given informed consent. PHN implements a comprehensive privacy management framework by mandating that all personnel sign a Non-Disclosure Agreement, safeguarding all collected data. Access to DHIS2 was granted based on defined roles and criteria. Each user was assigned a unique username and password-protected login credentials. De-identified or aggregated data were employed when data sharing was necessary. Approval from an

institutional review board was not required for the secondary data analysis, as anonymous programmatic data was utilized.

3. Results

3.1. Characteristics of participants and caregivers

Table 1 presents the characteristics of participants and caregivers. Most of the 16,507 participants included in this analysis were female (n = 8832; 53.5%), 0-9 years old (n = 9641; 58.4%), and were enrolled at an educational institution (n = 10,428; 63.2%). Most caregivers were female (n = 14,531; 88.0%), and they were HIV-negative (n = 9945; 60.2%).

3.2. Vulnerability factors of participants

Table 2 presents the frequency distribution of vulnerability factors among participants. The most common source of vulnerability among the participants was having parents or caregivers without a source of income (n = 6315; 38.3%), followed by participants being HIV-positive (n = 3992; 24.2%) and severe hunger (n = 3401; 20.6%). Other sources of vulnerability included disability (n = 354; 2.1%), having both parents dead (n = 310; 1.9%), diagnosed or presumed to be with TB (n = 157; 1.0%), living in child-headed households (n = 83; 0.5%), and sexual abuse (n = 80; 0.5%). Few participants reported ever being sexually exploited (n = 36; 0.2%).

Table 1
Frequency distribution of characteristics of participants and caregivers.

Characteristics	Frequency n (%)
Participant's age group (years)	
0 – 9	9641 (58.4)
10 – 14	3942 (23.9)
15 - 20	2924 (17.7)
District	
Eenhana	2340 (14.2)
Engela	4104 (24.9)
Katima	2164 (13.1)
Okahao	285 (1.7)
Okongo	587 (3.6)
Omuthiya	401 (2.4)
Onandjokwe	1717 (10.4)
Oshakati	2124 (12.9)
Oshikuku	608 (3.7)
Outapi	557 (3.4)
Tsandi	305 (1.8)
Tsumeb	480 (2.9)
Windhoek	835 (5.1)
Participant's educational enrolment status	
Never enrolled	5738 (34.8)
Dropout	341 (2.1)
Enrolled	10,428 (63.2)
Participant's sex	
Male	7675 (46.5)
Female	8832 (53.5)
Caregiver's sex	
Male	1976 (12.0)
Female	14,531 (88.0)
Caregiver's marital status	
Married	3244 (19.7)
Separated, divorced, or widowed	925 (5.6)
Single, never married	7354 (44.6)
Missing information	4984 (30.2)
Caregiver's educational level	
Dropout	7102 (43.0)
Never enrolled	1627 (9.9)
High school or below	1417 (8.6)
Attending vocational training or tertiary education	34 (0.2)
Completed vocational training or tertiary education	186 (1.1)
No responses	6141 (37.2)
Caregiver's HIV status	
Negative	9945 (60.2)
Positive	1587 (9.6)
Don't know	9 (0.1)
Missing information/Refused to answer	4966 (30.1)

Table 2
Frequency distribution of vulnerability factors among participants.

Characteristics	Frequency n (%)
Household hunger scale	
Little or no hunger	4825 (29.2)
Moderate hunger	8281 (50.2)
Severe hunger	3401 (20.6)
Are your parents alive?	
Both parents alive	14,342 (86.9)
One parent alive	1634 (9.9)
Both parents dead	310 (1.9)
Don't know	221 (1.3)
Is the child living in a child-headed household?	
Yes	83 (0.5)
No	12,353 (74.8)
No response	4071 (24.7)
Do you have any disability?	
Yes	354 (2.1)
No	16,153 (97.9)
No response	
Does the parent/caregiver have a source of income?	
Yes	10,192 (61.7)
No	6315 (38.3)
Have you ever been sexually abused?	
Yes	80 (0.5)
No	12,371 (74.9)
No response	4056 (24.6)
Have you ever been sexually exploited?	
Yes	36 (0.2)
No	12,358 (74.9)
No response	4113 (24.9)
Is the child a presumptive or diagnosed TB case?	
Yes	157 (1.0)
No	12,095 (73.3)
No response	4255 (25.8)
Participant's HIV status	
Negative	10,294 (62.4)
Positive	3992 (24.2)
Unknown	2221 (13.5)

3.3. Recent physical abuse rate among participants

Table 3 presents the frequency distribution of recent physical abuse against participants by district. Among the 16,507 participants included in this analysis, 1803 (10.9%) participants were recently physically abused, with a 95% confidence interval (CI) (10.4% – 11.4%), while 14,704 (89.1%) were not, 95% CI (88.6% – 89.6%). Omuthiya had the highest physical abuse rate (n = 73; 18.2%), while Outapi had the lowest (n = 47; 8.4%). More details are in Table 3.

Table 3
Frequency distribution of recent physical abuse against participants by district.

District	Physically abused	
	No n (%)	Yes n (%)
Eenhana	2130 (91.0)	210 (9.0)
Engela	3658 (89.1)	446 (10.9)
Katima	1927 (89.0)	237 (11.0)
Okahao	249 (87.4)	36 (12.6)
Okongo	525 (89.4)	62 (10.6)
Omuthiya	328 (81.8)	73 (18.2)
Onandjokwe	1533 (89.3)	184 (10.7)
Oshakati	1844 (86.8)	280 (13.2)
Oshikuku	553 (91.0)	55 (9.0)
Outapi	510 (91.6)	47 (8.4)
Tsandi	273 (89.5)	32 (10.5)
Tsumeb	433 (90.2)	47 (9.8)
Windhoek	741 (88.7)	94 (11.3)
TOTAL	14,704 (89.1)	1803 (10.9)

3.4. Factors associated with recent physical abuse among participants

Table 4 presents the results of the analyses on factors associated with recent physical abuse against participants. Chi-square tests revealed statistically significant associations between recent physical abuse and the participant's age group, district, disability status, and the caregiver's sex ($p < 0.05$). However, no associations were noted between recent physical abuse and participants' educational enrolment status, sex, TB status, sexual abuse and exploitation status, and caregiver's marital status, source of income, and household hunger scale. Participants aged 10-14 years were less likely to have experienced recent physical abuse than those aged 15-20, adjusted odds ratio (AOR) = 0.81, 95% CI (0.70 – 0.95). Disabled participants had a lower likelihood of reporting recent physical abuse than the non-disabled ones (AOR = 0.62, 95% CI (0.41 – 0.93)). Furthermore, participants who had caregivers who were HIV-positive were less likely to have experienced recent physical abuse than those whose caregivers were HIV-negative (crude odds ratio (COR) = 0.25, 95% CI (0.06 – 0.99). In contrast, participants from Omuthiya were more likely to have experienced recent physical abuse than those from Windhoek (AOR = 1.74, 95% CI (1.25 – 2.43)).

4. Discussion

This study revealed that 10.9% of participants experienced recent physical violence. Omuthiya had the highest physical abuse rate, while Outapi had the lowest. Participants aged 10-14 years, the disabled, and those with HIV-positive caregivers had a lower likelihood of reporting recent physical violence. However, participants from Omuthiya were more likely to experience recent physical violence. The Oshikoto region, where Omuthiya is located, was reported to have the highest cases of GBV among six regions in the country in 2024. The high number of cases in the region was attributed to alcohol and drug abuse, poverty, and peer pressure (Iyambo, 2024). The study's findings support the relevance of the socioecological framework in understanding physical violence against OVC. The framework can be used to understand how various levels of a child's surroundings, including individual, interpersonal, organizational, community, and public policy factors, influence physical violence against them (Pillay, 2024). Individual factors identified in this study include age and disability, while one interpersonal factor was the HIV status of the caregiver. District was the only community factor identified in the current study. Shinyemba et al. (2025) identified considerable spatial variations in the prevalence of physical violence against children and young people in Namibia, with the highest rates found in districts located in the central, northern, and northeastern regions (Shinyemba et al., 2025). The spatial heterogeneity of area-level violence and its associated risks likely results from intricate interactions among social and physical environments, traditional child-rearing practices, and cultural misunderstandings regarding violence against children and young people (Gentz et al., 2021).

This study found a rate of 10.9% for recent physical violence among OVC, which is significantly higher than the 1.6% prevalence reported in a Nigerian family setting (Gabriel Akintomide et al., 2023). The observed differences may indicate variations in study settings and the extent to which OVC felt secure disclosing their experiences. The high prevalence of recent physical violence against OVC in this study may indicate a pervasive culture of violence within certain communities in the country. Shinyemba et al. (2025) noted that physical violence against children and young people is associated with witnessing community violence and parental abuse of other siblings (Shinyemba et al., 2025). A study conducted in Namibia found that 10.1% of women receiving antenatal care at a clinic in Outapi experienced lifetime IPV (Bikinesi et al., 2017). IPV may result in mothers abusing their children due to its psychological effects on the mother (Doswell et al., 2025). The reported rate may underestimate the actual prevalence of physical violence against OVC, as some individuals may not disclose their experiences due to feelings of embarrassment, the belief that such violence

Table 4
Factors associated with recent physical violence among participants.

Characteristics	Crude Odds ratios	95% CI*	Adjusted** Odds ratios	95% CI*	Chi-square test p-value
Participant's age group (years)					0.04
0 – 9	0.89	0.78 – 1.01	0.88	0.77 – 1.01	
10 – 14	**0.83**	**0.71–0.96**	**0.81**	**0.70–0.95**	
15 - 20	Reference	Reference	Reference	Reference	
Participant's educational enrolment status					0.71
Never enrolled	NC	NC	NI	NI	
Dropout	NC	NC	NI	NI	
Enrolled	Reference	Reference	Reference	Reference	
Participant's sex					
Male	1.07	0.97 – 1.18	NI	NI	
Female	Reference	Reference	NI	NI	
District					**<0.01**
Eenhana	0.78	0.60 – 1.01	0.78	0.60 – 1.00	
Engela	0.96	0.76 – 1.22	0.95	0.75 – 1.21	
Katima	0.97	0.75 – 1.25	0.96	0.75 – 1.24	
Okahao	1.14	0.76 – 1.25	1.10	0.73 – 1.66	
Okongo	0.93	0.66 – 1.31	0.92	0.66 – 1.30	
Omuthiya	**1.75**	**1.26–2.45**	**1.74**	**1.25–2.43**	
Onandjokwe	0.95	0.73 – 1.23	0.94	0.73 – 1.23	
Oshakati	1.20	0.93 – 1.54	1.19	0.93 – 1.52	
Oshikuku	0.78	0.55 – 1.11	0.76	0.54 – 1.08	
Outapi	0.73	0.50 – 1.05	0.71	0.49 – 1.02	
Tsandi	0.92	0.60 – 1.24	0.91	0.60 – 1.40	
Tsumeb	0.86	0.59 – 1.24	0.85	0.59 – 1.23	
Windhoek	Reference	Reference	Reference	Reference	
Caregiver's sex					**0.05**
Male	0.86	0.73 – 1.004	NI	NI	
Female	Reference	Reference	Reference	Reference	
Caregiver's marital status					0.56
Married	NC	NC	NI	NI	
Separated, divorced, or widowed	NC	NC	NI	NI	
Single, never married	NC	NC	NI	NI	
Caregiver's educational level					0.07
Dropout	1.00	0.63 – 1.61	NI	NI	
Never enrolled	0.99	0.61 – 1.61	NI	NI	
High school or below	1.28	0.78 – 2.08	NI	NI	
Attending vocational training or tertiary education	0.52	0.12 – 2.33	NI	NI	
Completed vocational training or tertiary education	Reference	Reference	NI	NI	
Caregiver's HIV status					0.10
Negative	0.25	0.06 – 1.03	NI	NI	
Positive	**0.25**	**0.06–0.99**	NI	NI	
Don't know	Reference	Reference	NI	NI	

(continued on next page)

Table 4 (*continued*)

Characteristics	Crude Odds ratios	95% CI*	Adjusted** Odds ratios	95% CI*	Chi-square test p-value
Household hunger scale					0.30
Little or no hunger	NC	NC	NI	NI	
Moderate hunger	NC	NC	NI	NI	
Severe hunger	NC	NC	NI	NI	
Are your biological parents alive?					0.48
One parent alive	NC	NC	NI	NI	
Both parents alive	NC	NC	NI	NI	
Both parents dead	NC	NC	NI	NI	
Don't know	NC	NC	NI	NI	
Is the child living in a child-headed household?					0.50
Yes	NC	NC	NI	NI	
No	NC	NC	NI	NI	
Do you have any disability?					**0.02**
Yes	**0.61**	**0.41–0.93**	**0.62**	**0.41–0.93**	
No	Reference	Reference	Reference	Reference	
Does the parent/caregiver have a source of income?					0.71
Yes	NC	NC	NI	NI	
No	NC	NC	NI	NI	
Have you ever been sexually abused?					0.11
Yes	1.62	0.89 – 2.95	NI	NI	
No	Reference	Reference	NI	NI	
Have you ever been sexually exploited?					0.25
Yes	1.67	0.70 – 4.03	NI	NI	
No	Reference	Reference	NI	NI	
Is the child a presumptive or diagnosed TB case?					0.27
Yes	NC	NC	NI	NI	
No	NC	NC	NI	NI	

NC – Not computed; NI – Not included; *CI is the 95% confidence interval; **Adjusted for the participant's district, age group, and disability.

is not problematic, or insufficient social support, even when incidents are reported (Nguyen et al., 2021). The prevalence of physical violence against OVC in this study may be elevated due to the ongoing use of corporal punishment in schools within the country. Despite legal prohibitions, reports indicate that the practice persists in certain schools (Ministry of Gender Equality, Poverty Education, and Social Welfare, 2020). Strategies to mitigate corporal punishment in educational settings include rewarding disciplined students, implementing guidance and counseling sessions, involving students in decision-making processes, and engaging parents in students' discipline (Ahmed & Rashid, 2023). Additionally, incentivizing discipline and engaging OVC in decision-making processes may contribute to a reduction in domestic physical violence. We recommend scaling up school-based violence prevention programs to combat corporal punishment and create safe educational environments. Psychosocial support of victims should be enhanced, as it reduces the chances of girls being victims and boys being perpetrators in adulthood (Mathews et al., 2011). We also recommend training community members on the Child Care and Protection Act (CCPA) to enhance their understanding of and enforcement of child protection laws. OVC should be empowered with legal knowledge and self-protection skills.

This study revealed that participants in Omuthiya had a higher likelihood of experiencing recent physical abuse than those in Windhoek. Cultural variations in child discipline across regions may have contributed to this phenomenon. Therefore, VAC awareness campaigns in high-risk districts such as Omuthiya, Oshakati, and Okahao, focusing on physical violence and community-level behavior change, must be expanded. Periodical regional VAC assessments must be conducted to identify and address localized drivers of violence. Individuals aged 10-14 years had a lower likelihood of reporting recent physical violence compared to those aged 15-19 years. A study conducted in Burkina Faso indicated that younger children were more susceptible to physical violence in both domestic and educational environments, unlike older adolescents who were not enrolled in school (Musizvingoza et al., 2022). The findings of this study may be explained by the observation that participants aged 10-14 exhibit fewer disciplinary issues compared to older adolescents, who may experience mood changes related to hormonal fluctuations during this developmental stage (Peper & Dahl, 2013). Caregiver education on managing adolescents and understanding the challenges involved in raising them should be enhanced. In the PHN-led OVC program, parenting interventions target the most vulnerable first, including those infected with HIV. So, individual-level data is required to determine the impact of the parenting interventions on OVC physical abuse. This study found that participants with HIV-positive caregivers had a lower likelihood of recent physical abuse. HIV-positive caregivers may exhibit greater empathy toward OVC than HIV-negative caregivers as they comprehend the potential risks their children may face. This study revealed that participants with disabilities had a lower likelihood of experiencing recent physical abuse. We anticipated that disabled participants would have a higher likelihood of experiencing physical abuse due to their vulnerabilities, including challenges in reporting abuse, describing perpetrators, recognizing approaching assailants, and dependence on others for daily activities (Christoffersen, 2019). The lower likelihood of experiencing recent physical violence by disabled OVC requires future qualitative studies to unravel the reasons behind it.

No associations were noted between recent physical abuse and participants' educational enrolment status, sex, TB status, sexual abuse and exploitation status, and caregiver's marital status, source of income, and household hunger scale. Considering that sexual abuse and sexual exploitation are forms of VAC, it was surprising that this study did not find any association between them and physical violence against OVC. A possible explanation might be that OVC were unwilling to disclose sexual abuse or exploitation due to fear of being stigmatized in the communities (Kennedy & Prock, 2018). Furthermore, we expected OVC whose caregivers had no source of income and from households with moderate to severe hunger to be more likely to experience physical violence since these situations result in mental health problems among the caregivers (Tiikkaja et al., 2025).

This study is limited by its reliance on a program dataset, which restricts the number of variables that can be included in the analysis. The comparison of recent physical violence against OVC in the districts must be done with caution since the proportions were not weighted or standardized. Using participants with complete data in the multivariable regression model might have resulted in biased results, as some variables were removed from the analysis. Causal inferences cannot be made from the study's findings, as we employed a cross-sectional design. Reliance on a single-item outcome might have reduced the measurement validity of the study. Furthermore, the findings may have been affected by social desirability bias due to the self-reported nature of the responses. Additionally, the program did not ask for the identity of the perpetrators, which could have helped in informing interventions. Future longitudinal or qualitative studies should examine the underlying reasons for physical violence against OVC, considering both the perspectives of perpetrators and victims, to enhance understanding of the issue and inform prevention strategies. Additionally, future studies may provide insights into the structural drivers of physical violence against OVC through geospatial analyses.

5. Conclusion

Approximately one billion children aged two to 17 years worldwide have encountered physical, sexual, or emotional violence or neglect. VAC results in both direct and indirect health consequences for the victims. Although almost half of girls and boys experience physical,

sexual, or emotional violence during their childhood in Namibia, estimates show that only half of the victims report these acts of violence against them. OVC are disproportionately affected due to their living circumstances. This study revealed that 10.9% of the participants had experienced recent physical abuse. Participants aged 10-14 years, the disabled, and those with HIV-positive caregivers had a lower likelihood of reporting recent physical abuse. However, participants from Omuthiya were more likely to experience recent physical abuse. The findings of this study were limited by missing data, the non-standardization of district rates, and the cross-sectional design used. We recommend an expansion of VAC awareness campaigns in high-risk districts, focusing on physical violence and community-level behavior change. Periodical regional VAC assessments must be conducted to identify and address localized drivers of violence. Additionally, we recommend future longitudinal or qualitative studies that may provide insights into the structural drivers of physical violence against OVC through geospatial analyses.

CRediT authorship contribution statement

Enos Moyo: Writing – original draft, Formal analysis, Conceptualization. **Hadrian Mangwana:** Writing – review & editing, Data curation. **Endalkachew Melese:** Writing – review & editing, Conceptualization. **Simon Takawira:** Writing – review & editing, Data curation. **Bernadette Harases:** Writing – review & editing. **Rosalia Indongo:** Writing – review & editing. **Perseverance Moyo:** Writing – review & editing. **Kopano Robert:** Writing – review & editing. **Tafadzwa Dzinamarira:** Writing – review & editing, Writing – original draft, Conceptualization.

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Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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